What is Braille?

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Virginia's Braille Awareness Guide

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Produced by the
Virginia Department for the Visually Handicapped and the
Virginia Department of Education

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Most school children are taught to read and write print. However, the child who is totally blind or has a significant visual impairment must learn alternative methods of reading and writing. Braille may be the most appropriate method of reading and writing for these students, provided they are physically and mentally capable.

Braille is a system of touch reading and writing using characters formed by combinations of six embossed dots. Dots are arranged evenly in two vertical columns of three dots each within a space called a braille cell. A simple braille cell is formed by one or more dots, and occupies the space of a full cell.

Braille is read by lightly moving the fingers left to right across the lines of braille. On the embossed side, the dots of the braille cell are numbered downward on the left, as 1, 2, 3 and downward on the right, as 4, 5, 6. Sixty-four different dot combinations can be formed within a cell; these combinations of dots form the basis for the braille system. Braille letters and numbers differ from print equivalents because they can represent a variety of additional print symbols. The braille reader can determine the meaning of a particular combination of dots by the subject matter.

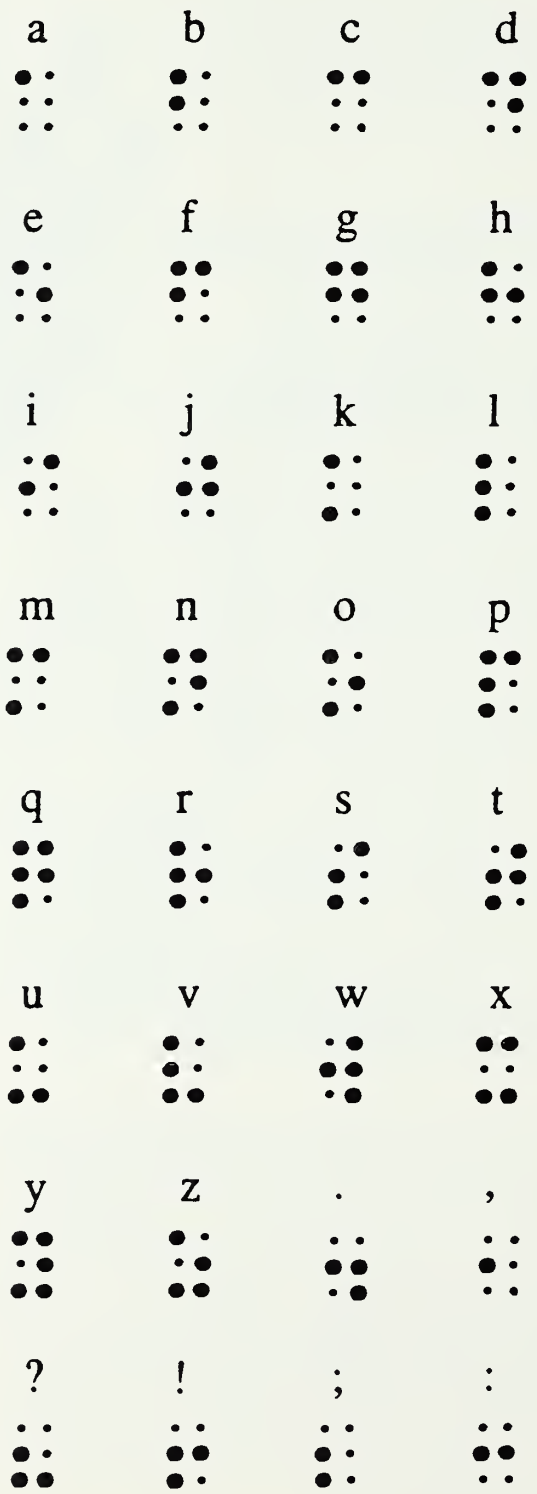
1 •• 4
2 •• 5
3 •• 6

Braille was first developed by Louis Braille, a blind Frenchman who was seeking an improved method for writing and reading. The writing system which he invented evolved from the tactile "Ecriture Nocturne" (night writing) code invented by Charles Barbier for sending military messages that could be read on the battlefield at night, without light. Since its inception, there have been many improvements and refinements of braille, both in the United States and abroad.

Braille Codes

Five major braille codes are used in the United States:

1. English Braille—American Edition is commonly known as literary braille, and is used for reading and writing literature or any other material that involves the use of only standard letters, numbers and punctuation marks. There are three grades of braille within this code:



Grade 1 braille consists of letters of the alphabet, punctuation marks, numbers, and a few special braille symbols.

Grade 2 braille includes braille symbols used in grade 1 braille as well as 189 contractions and 76 short-form words. Contractions are special braille characters which represent groups of letters that appear frequently in English. Short-form words are abbreviated forms of the words they represent. Contractions and short-form words are used to save space and facilitate reading. If every word were spelled out, reading braille would be very slow, and a short print book would be enormous in braille. Even when contractions and short-form words are used, a standard print page is approximately equivalent to two and a half braille pages.

Grades 1 and 2 braille constitute the basic literary braille code for use throughout the United States. Grade 3 braille is an extension of Grade 2. It includes additional contractions and short-form words.

Grade 3 braille contains more than 500 contracted forms and is used mainly by individuals for their personal convenience, especially for fast note-taking. Similarly, a system of braille shorthand has been designed for use by blind stenographers. It consists of highly contracted forms for writing words, phrases, and letter groups which occur frequently in commercial usage.

2. **The Nemeth Braille Code for Mathematics and Science Notation** consists of the technical symbols used in mathematical and scientific work. This code is used for reading or writing mathematics, statistics, physics, or chemistry.

3. **Braille Music Notation,** which is the name of the music code, is used for reading and writing music notation. It includes the necessary symbols for the transcription of instrumental, vocal, and choral scores.

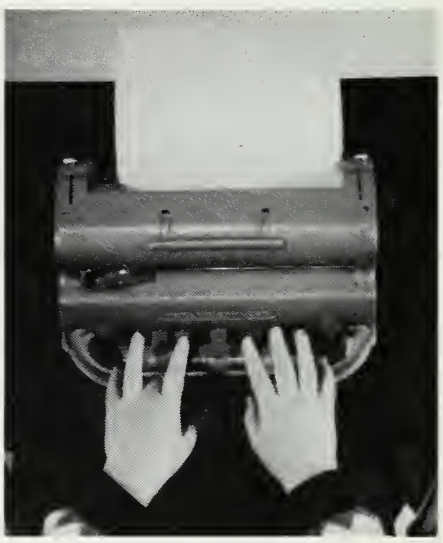
4. **The Computer Braille Code** is used primarily to represent the American Standard Code for Information Interchange (ASCII). ASCII is one of the standard formats for representing computer characters.

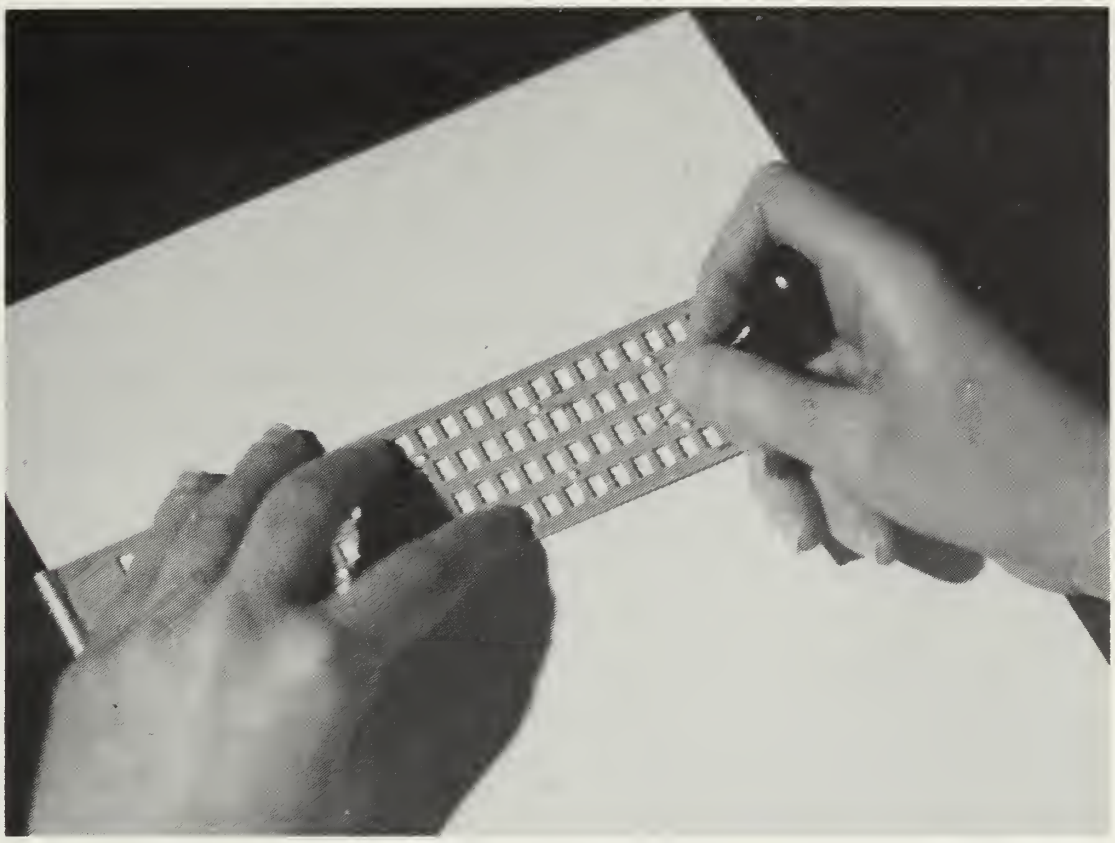
5. **The Code of Braille Textbook Formats and Techniques** is used in the production of all school textbooks and is used in combination with the other four codes.

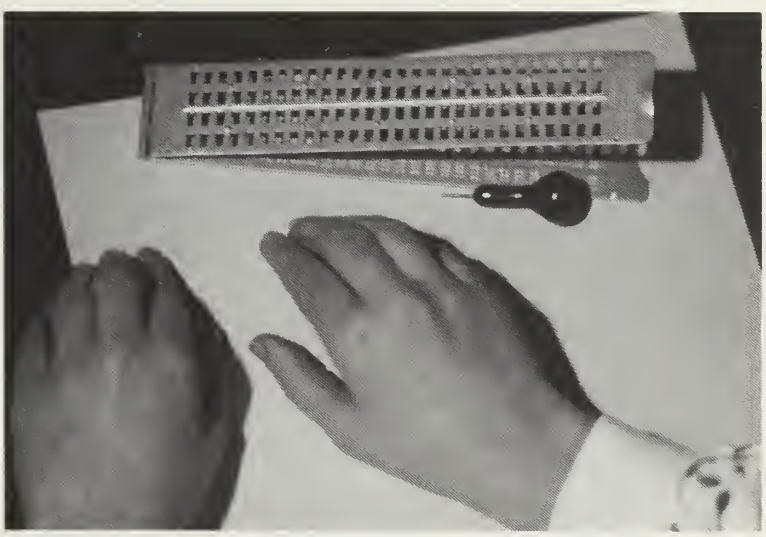
Writing Braille

There are two methods of writing braille manually; it is important for braille students to be taught both methods.

The *braille writer* is comparable to the print manual typewriter, although the two machines are very different. The braille writer has six keys which correspond to the six dots of the braille cell. Beginning at the center, the three keys to the left of the space bar are numbered outward 1, 2, 3; the keys to the right of the space bar are numbered outward 4, 5, 6. After braille paper is inserted into the machine, the student presses from one to six keys simultaneously to produce the desired braille character in the cell or space. As the keys are pressed, small pins push up the dots from the underside of the braille paper. The cells are formed from left to right across the paper.







The *slate and stylus* are used together for writing by hand. Writing with a slate and stylus is comparable to writing with a pencil. The slate is the template used to guide formation of the raised dots in the cells or spaces. The stylus is a punch that looks like a small awl and is used to punch the braille dots into the paper. The slate is used as a guide so that the dots are evenly spaced in the cell, and the cells are uniformly spaced across the page. In this method, braille characters are formed by hand, one dot at a time. The resulting raised dots are embossed on the underside of the paper; therefore, the writing is done from the right to left. Dots 1, 2 and 3 are written at the right-hand side of the braille cell on the slate; dots 4, 5 and 6 are written on the left-hand side. When the page is turned over it can be read from left to right.

In addition to the two manual methods of writing braille, electronic paperless braille writers can be utilized. These devices have the capability to store braille. Electronic braille writers also have six keys that correspond to the six dots of the braille cell, and braille is produced in the same manner as with a manual braille writer. The braille is read on an electronic display of mechanical braille cells. Each cell is comprised of pins that are electronically elevated to represent the raised braille dots. Displays range in length from one to eighty cells. As one line is read, the reader prompts the device and the entire display changes to bring up the next line of text.

Braille Instruction Delivery System

The Code of Virginia, Section 22.1-217, specifies that special education services to children with visual disabilities in public schools is the joint responsibility of the local school boards and the Board for the Visually Handicapped, subject to the regulations of the State Board of Education.

To implement this mandate, the Department of Education and the Department for the Visually Handicapped work under an interagency agreement which establishes specific responsibilities for each agency and the public schools. The agreement specifies that school divisions are responsible for providing braille instruction to children who need it. Therefore, school divisions hire certified teachers of the visually impaired to provide services to blind and visually disabled students and consult with other school personnel. The teachers of the visually impiared provide braille instruction to students for whom the determination of need has been made. In addition, if the child's Individual Educational Plan (IEP) Team determines that he/she needs a more concentrated program of braille instruction, that student can be placed in Virginia's residential school for the blind.

A child with no additional handicaps who needs to learn braille will usually receive pre-braille instruction in preschool or kindergarten, and learn braille in kindergarten through fourth grade; this parallels the pattern for teaching children who learn print. During this period of pre-braille and initial braille instruction, it is important that the child receive instruction on a regular basis. Once the student acquires the braille skills, the time required for braille instruction can be eliminated. Braille can be used in regular classes and can enable the student to participate in classes in the local public schools.

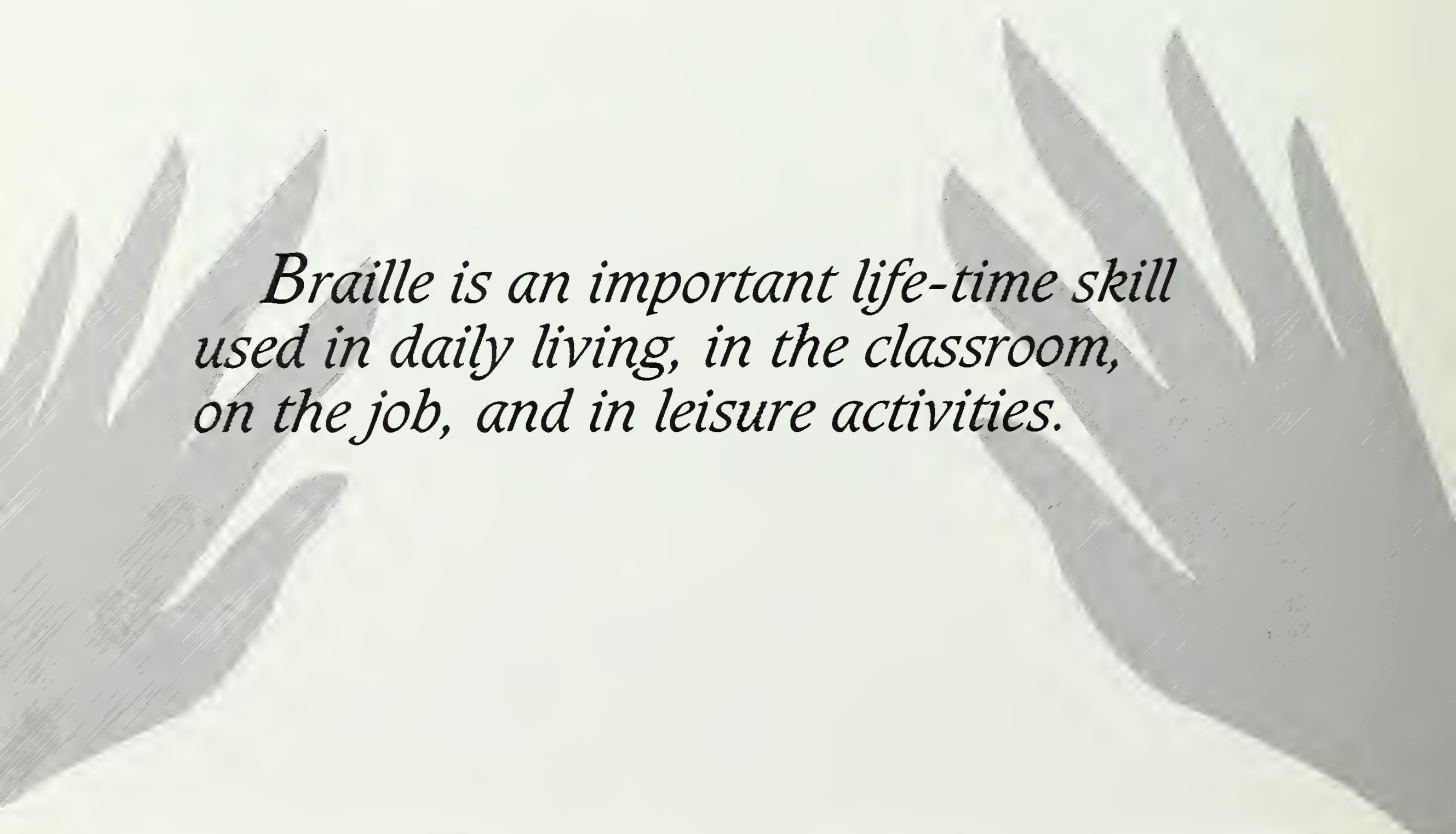
Some students, such as those who have progressive eye diseases, may be instructed in the use of braille and large print. Nemeth Code is introduced when the student begins to perform written math functions; music and computer codes are introduced as needed.

Production of Braille Textbooks and Instructional Materials

Braille material is provided to Virginia's students via several means. Materials that are developed in local school divisions, such as teacher-made tests or worksheets, are transcribed into braille by the teacher of the visually impaired, or produced by a keyboardist through the use of computer translation software and a braille printer.

Braille textbooks are loaned by the Department for the Visually Handicapped's Instructional Materials and Resource Center (IMRC) to school divisions whenever they enroll a child who needs books in braille. When that student is finished with the textbook, it is returned to the IMRC so that it can be loaned to other school divisions.

The IMRC obtains some braille textbooks from the American Printing House for the Blind and other states' transcribing agencies. If unavailable from another source, the textbooks will be transcribed into braille at the IMRC, or through a network of volunteer braille transcribers who work with the IMRC.

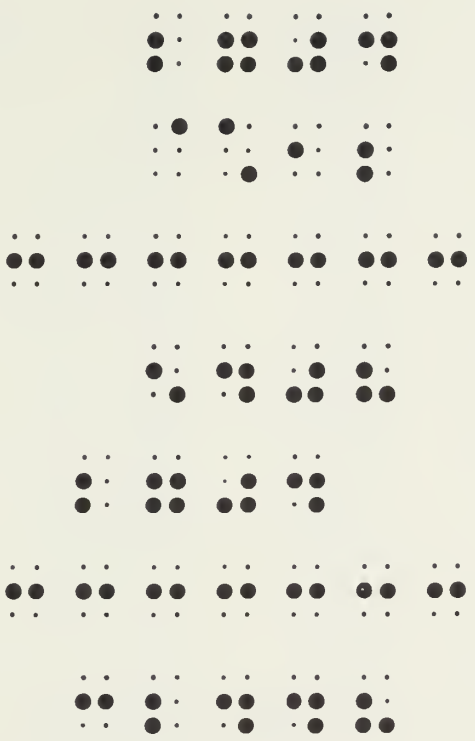


Braille is an important life-time skill used in daily living, in the classroom, on the job, and in leisure activities.

Nemeth Code

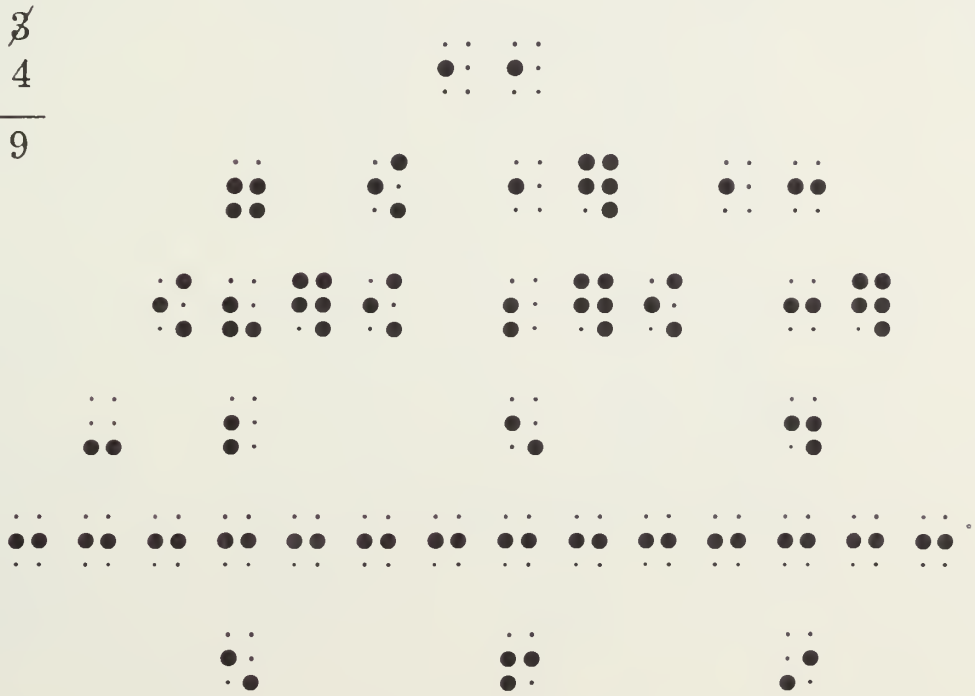
(1)

$$\begin{array}{r} 2704 \\ \times 12 \\ \hline 5408 \\ 2704 \\ \hline 32448 \end{array}$$



(2)

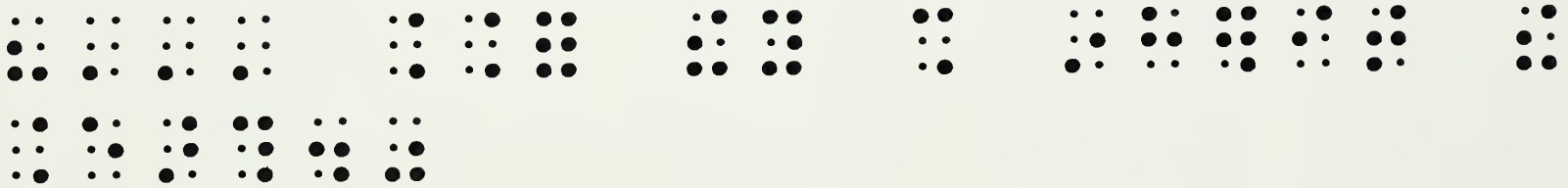
$$\begin{array}{r} {}^{7}\not{8}\ {}^{11}\not{2}\ {}^{13}\not{3} \\ -2\ 5\ 4 \\ \hline 5\ 6\ 9 \end{array}$$



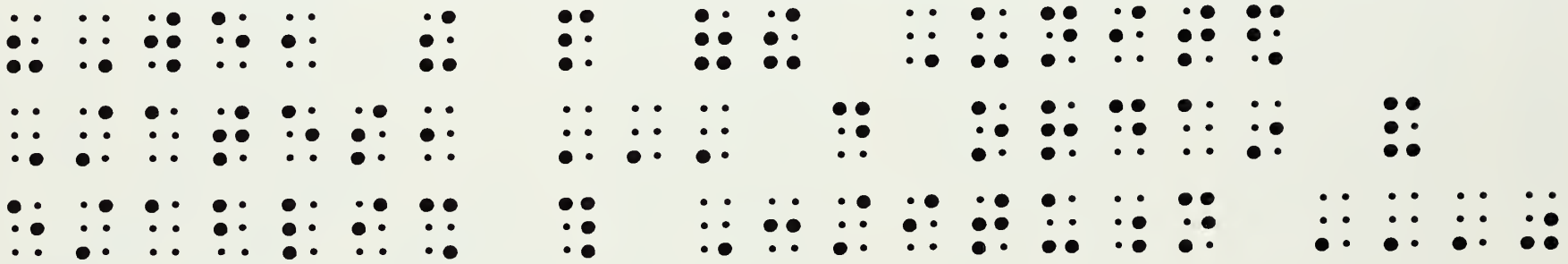
Literary Braille

"Fools rush in . . . "

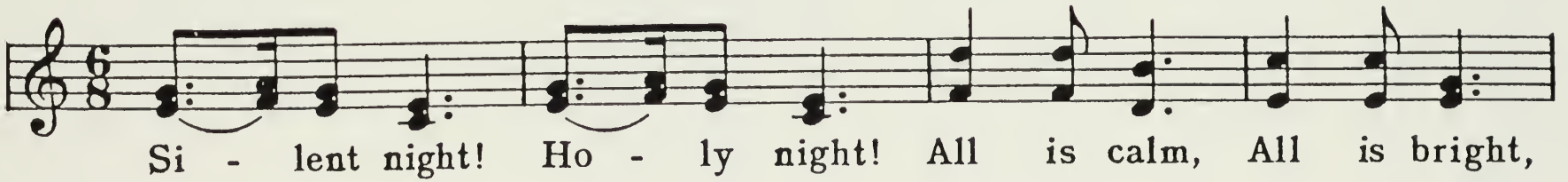
". . . *for they shall inherit the earth.*"

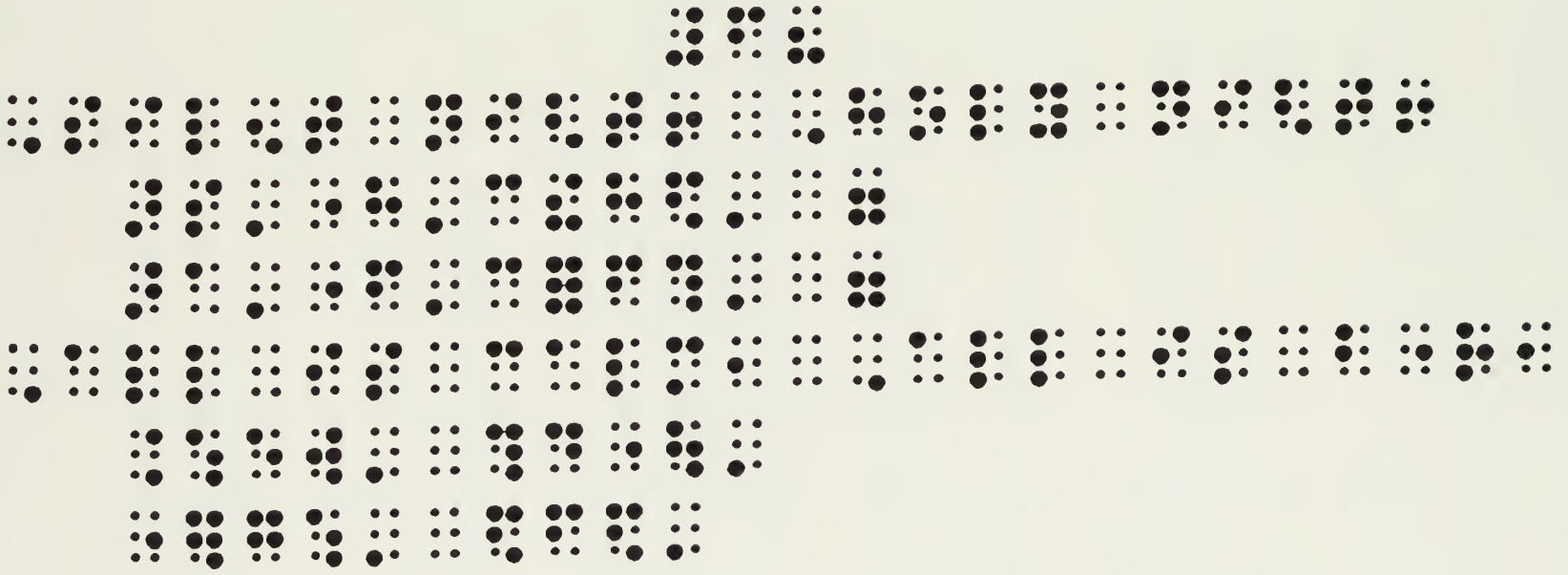


"We, the people of the United States, . . . do ordain and establish this Constitution . . . "



Braille Music Code





Information and Resources

The following is a list of organizations that can provide further information regarding braille:

American Council of the Blind
1155 15th Street, N.W., Suite 720
Washington, D.C. 20005
(202) 467-5081

American Foundation for the Blind
15 West 16th Street
New York, New York 10011
(212) 620-2000

American Printing House for the Blind, Inc.
P.O. Box 6085
Louisville, Kentucky 40206
(502) 895-2405

Association for Education and Rehabilitation of the Blind and Visually Impaired
206 N. Washington Street, Suite 320
Alexandria, Virginia 22314
(703) 548-1884

National Braille Association
422 Clinton Avenue South
Rochester, New York 14620
(716) 473-0900

National Braille Press
88 Stephens Street
Boston, Massachusetts 02115
(617) 266-6160

National Federation of the Blind
1800 Johnson Street
Baltimore, Maryland 21230
(301) 659-9314

National Library Service to the Blind and Physically Handicapped
Library of Congress
1291 Taylor Street, NW
Washington, D.C. 20542
(202) 287-5000

Virginia Department of Education
P.O. Box 6-Q
Richmond, Virginia 23216-2060

Virginia Department for the Visually Handicapped
397 Azelea Avenue
Richmond, Virginia 23227
(804) 371-3140
Va (800) 622-2155

Virginia Instructional Materials & Resource Center (IMRC)
1901 Roane Street
Richmond, Virginia 23222
(804) 786-8016
Va (800) 552-7015

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